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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/707,085 | 11/06/2000 | William M. OuYang | XXT-059(D/99572) | 8321 |

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EXAMINER

LU, TOM Y

| ART UNIT | PAPER NUMBER |
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2621

8

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/707,085

Applicant(s)

OUYANG ET AL.

Examiner

Tom Y Lu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Upon further review of specification and in light of applicant's arguments, the claims previously withdrawn from consideration as a result of restriction requirement are now subject to being rejoined. Claims 1-11 hereby rejoined and fully examined.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 8, 12-14, 18-19, 21, 23-26 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Banker et al (U.S. Patent No. 6,275,600 B1).

- a. Referring to Claim 1, Banker discloses providing first image data for printing an image in the printing system (a Bitmap raster image 12 is the claimed "first image" being inputted to digital printer 14, column 2, line 34); adding one or more reference marks to the first image data to indicate relative pixel locations of the first image data from the one or more reference marks (landmarks 26a and 26c are the claimed "reference marks", column 3, lines 38-42 and 60-62, also see figure 2); printing one a substrate the image with the one or more reference marks (printed image 16, column 2, line 43, also see figure 2); scanning the printed image to obtain second image data (printed image 16 is scanned by scanner 18 to create digital pattern data 20, which is the claimed "second image", column 2, line

43 and line 60); and analyzing the second image data based on the first image data of the same pixel, pixel locations of the second image data being determined relative to the one or more reference marks (the print image analyzer 22 performs analysis on the second image data, digital pattern data 20. see figure 1. Note upon completion of the landmark registration as mention at column 3, line 28, the pixel locations between the first image and the second image are the same).

- b. Referring to Claim 2, Banker discloses wherein said first image data is originated from an image scanner for reading an original (column 2, lines 38-39).
- c. Referring to Claim 3, Banker discloses wherein said first image data is originated from a computer system that generates an image that is printed in the printing system (column 2, lines 39-40).
- d. Referring to Claim 4, Banker discloses wherein said reference mark is added to one of corners in the image (see landmarks 26a, 26c in figure 2).
- e. Referring to Claim 8, Banker discloses generating a half-tone image having one or more half-tone values; printing the half-tone image; scanning the printing half-tone image to obtain half-tone values for the half-tone image printed; and analyzing the printed half-tone image based on originally generated half-tone image (the difference between Claim 8 and Claim 1 is Claim 8 calls for half-tone image and half-tone values, where Banker at column 9, line 25, points out the printer system uses tone cartridge, which means it is a half-tone printer, and the half-tone value is the density value mentioned at column 6, line 15).

- f. Referring to Claim 12, Banker discloses providing first image data for printing an image in the printing system (column 2, line 34); printing the image based on the first image data (column 2, line 43); examining registration and skew of the printed image (column 3, line 28); and where there is no skew of the printed image (upon completion of the landmark registration, the skewing or margin deviations have been corrected. Therefore, there is no skew of the printed image, column 3, lines 33-34), scanning the printed image to obtain second image data (the second image, digital pattern data 20 is a scanned image); and analyzing the second image data based on the first image data, pixel location of the second image data being assumed the same as pixel locations of the first image data (the print image analyzer 22 performs analysis on the second image data, digital pattern data 20. see figure 1).
- g. With regard to Claim 13, see explanation in Claim 2.
- h. With regard to Claim 14, see explanation in Claim 3.
- i. Referring to Claim 18, Banker discloses providing first image data for printing an image in the printing system (a raster image 12 is the claimed “first image” being inputted to digital printer 14, column 2, line 34); printing the image (printed image 16, column 2, line 43); scanning the printed image to obtain second image data (printed image 16 is scanned by scanner 18 to create digital pattern data 20, which is the claimed “second image”, column 2, line 43 and line 60); and analyzing the second image data based on the first image data (print image analyzer 22 is used to evaluate the print image characteristics of the scanned

image by conducting a series of tests of digital pattern data 20, column 3, lines 2-3); and detecting skew of the printed image based on the analysis of the printed image (the printer analyzer aligns digital pattern data 20 with a template to account for any skewing or margin deviations between digital printer 14 and scanner 18, column 3, lines 31-34).

- j. Referring to Claim 19, Banker discloses adding one or more reference marks to the first image data to indicate relative pixel locations of the first image data from one or more reference marks, pixel locations of the second image data being determined relative to the one or more reference marks (landmarks 26a, 26b and 26c are the claimed “reference marks”, column 3, lines 38-42 and 60-62, also see figure 2).
- k. Referring to Claim 21, Banker discloses a processor for generating first image data for printing an image (column 2, lines 40-41), a printing engine for printing the image on a substrate based on the first image data (digital printer 14, see figure 1); a scanner for scanning the printed image to obtain a second image data (scanner 18, see figure 1); and wherein said processor compares the second image data with the first image data to detect defects of the printed image and determine the print quality (the print analyzer system aligns digital pattern data 20 with a template to account for any skewing for margin deviations between digital printer 14 and scanner. Such template as mentioned at column 3, lines 35-36, represents the ideal location of pixels. And the template is the same as Bitmap 12,

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which is generated by the processor, and the processor knows the ideal location of the pixels).

- l. With regard to Claim 23, see explanation in Claim 2.
- m. With regard to Claim 24, see explanation in Claim 19.
- n. With regard to Claim 25, the first image is a half-tone image, see explanation in Claim 8.
- o. With regard to Claim 26, see explanation in Claim 4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5-7, 9-11, 15-17, 20, 22 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banker et al in view of Okuda et al (U.S. Patent No. 5,625,703). The arguments in Paragraph 2 above as to the applicability of Banker are incorporated herein.

- a. Referring to Claim 5, Banker teaches using print analyzer 22 to compare the second image with first image data to correct skewing or margin deviation and other defects as explained in Claim 21 above. Upon completion of the landmark registration, the skew is corrected; therefore, all the pixels on the second image data must be relative to the landmarks 26a and 26c. (Note the reference marks in the second image data are landmarks 26a and 26c shown in figure 2). However, Banker does not teach comparing a pixel of the first image data with a pixel of the

second image data; calculating a difference between the first image data and the second image data for each pixel; examining the difference of a pixel between the first image data and the second image data to determine whether the pixel of the second image is defective or not. Okuda at column 4, lines 45-60, teaches a difference circuit 9 calculates a level difference between the corresponding pixel data of the reference image data output from the reference memory 6 and the test image data output from the detection memory, and comparing the difference of a pixel with a predetermined value stored in the set value memory 9 to detect if the pixel is a defect. At the time the invention was made, a person of ordinary skill in the art would have been motivated to calculate a difference of a pixel between the first image and the second image for determining whether the pixel of the printed image falls into a defect because Okuda at column 5, lines 37-38, teaches the difference circuit 9 in combination with the functionality of grouping memory controller 31 as described at column 5, lines 7-32, posts an advantage of preventing erroneous determination of tone change recognition, which in Banker's system is quality degraded.

- b. Referring to Claim 6, Okuda teaches inputting a threshold value of the difference for determining whether a pixel of the second image is defective or not (Okuda: predetermined value, column 4, line 51).
- c. Referring to Claim 7, the combination of Okuda and Banker teaches counting the number of defective pixels in the second image data; and where the number of defective pixels is greater than a predetermined value, controlling the printing

system to stop printing or auto-purge the defective image from the system (Okuda: column 6, lines 1-12, as the number of the defective pixels increases, the total sum of absolute values of difference intermediate level increases, which will be larger than the predetermined value from set value memory 35. As a result, the tone change is recognized, which in Banker's system is considered to be quality degrade, and operation is alerted and the system stops, column 9, lines 36-39).

- d. With regard to Claim 9, the limitation of "half-tone" is addressed in Claim 8, the rest is explained in Claim 5.
- e. With regard to Claim 10, see explanation in Claim 6.
- f. With regard to Claim 11, see explanation in Claim 7.
- g. With regard to Claim 15, see explanation in Claim 5.
- h. With regard to Claim 16, see explanation in Claim 6.
- i. With regard to Claim 17, see explanation in Claim 7.
- j. With regard to Claim 20, see explanation in Claim 5.
- k. Referring to Claim 22, Banker teaches using print analyzer 22 to compare the second image with first image data to correct skewing or margin deviation and other defects as explained in Claim 21 above. However, Banker does not teach a memory device for storing a threshold value of a difference of a pixel between the first image and the second image for determining whether the pixel of the printed image falls into a defect. Okuda teaches a difference circuit 9 calculates a level difference between the corresponding pixel data of the reference image data output from the reference memory 6 and the test image data output from the

detection memory, and comparing the difference of a pixel with a predetermined valued stored in the set value memory 9 to detect if the pixel is a defect, column 4, lines 45-60. At the time the invention was made, a person of ordinary skill in the art would have been motivated to store a threshold of a difference of pixel between the first image the second image for determining whether the pixel of the printed image falls into a defect because Okuda at column 5, lines 37-38, teaches the difference circuit 9 in combination with the functionality of grouping memory controller 31 as described at column 5, lines 7-32, posts an advantage of preventing erroneous determination of tone change recognition, which in Banker's system is quality degraded.

- l. With regard to Claim 27, see explanation in Claim 5.
- m. Referring to Claim 28, Okuda teaches wherein said processor counts the number of defects in the printed image and determines the quality of the printed image based on the number of defects in the printed image (the number of pixels of intermediate level shown in column 6, equation 1 in Okuda, includes the number of defects, and the quality of the printed image is based on the number of the defects in the printed image because the equation shows higher the number of defects, larger the total sum of absolute values of differences of intermediate, which as a result degrades the quality of the image, and it becomes easier to recognize the tone change).
- n. With regard to Claim 29, the limitation of "half-tone image" is addressed in Claim 25; the rest is explained in Claim 22 above.

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- o. With regard to Claim 30, see explanation in Claim 7.

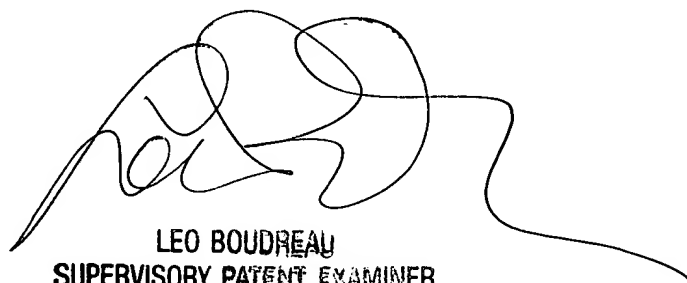
Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y Lu whose telephone number is (703) 306-4057. The examiner can normally be reached on 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Y. Lu



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